



# Know Your River - Ogwen

## Salmon & Sea Trout Catchment Summary

### Introduction

This report describes the status of the salmon and sea trout populations in the Ogwen catchment. Bringing together data from rod catches, stock assessments and juvenile monitoring, it will describe the factors limiting the populations and set out the challenges faced in the catchment.

Action tables set out habitat improvements to restore freshwater productivity of salmon and sea trout populations. These tables also include some work which will be carried out by our partner organisations, not just Natural Resources Wales (NRW).

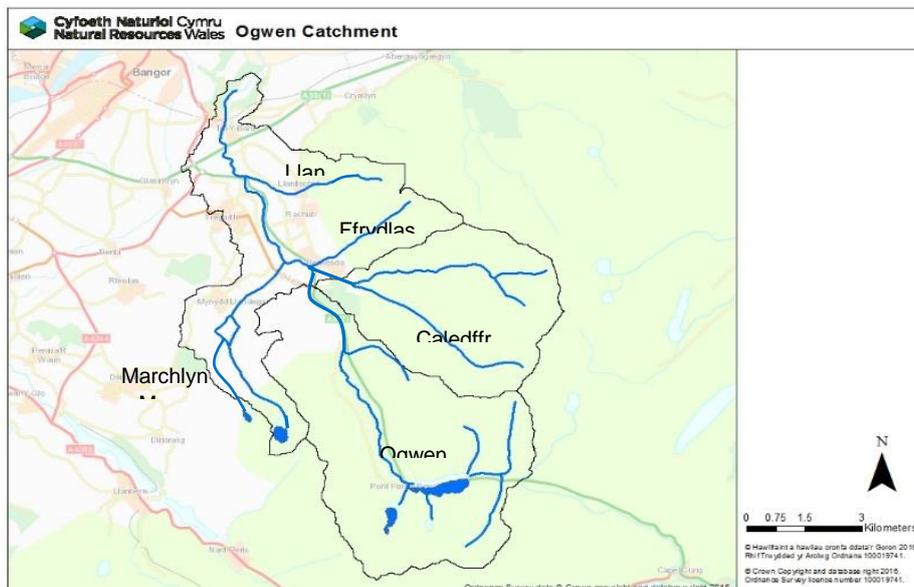
NRW has a duty, defined in the Environment (Wales) Act 2016 to have Sustainable Management of Natural Resources (SMNR) at the core of everything that we do. By applying the principles of SMNR in all of our activities - from agriculture, forestry and flood defence to development planning - we are undertaking catchment-wide initiatives that will deliver for fish stock improvements. Our reports highlight the importance of considering the whole catchment when identifying and addressing fisheries issues; and of working with partners.

NRW is committed to reporting on the status of salmon stocks in all principal salmon rivers where, in the past, Salmon Action Plans have been produced, and/or, in SAC rivers, where condition assessments have been undertaken under the Habitats Directive. In addition, the status of various fish species in all our rivers is reported as part of Water Framework Directive (WFD) assessments. This report refers to these commitments. Its purpose is to provide, for our customers, an informative and useful summary of stock status and remedial work planned - specifically for anglers, fishery and land owners; as well as other partners.

### Catchment

The Afon Ogwen catchment extends from the uplands of the Carneddi range down to the Menai Straits east of Bangor. Migratory salmonids have access to most of the main Ogwen River, however the waterfall at the outlet of Llyn Ogwen is a natural barrier stopping access to the lake and upper tributaries. Access to the other tributaries is also limited by waterfalls.

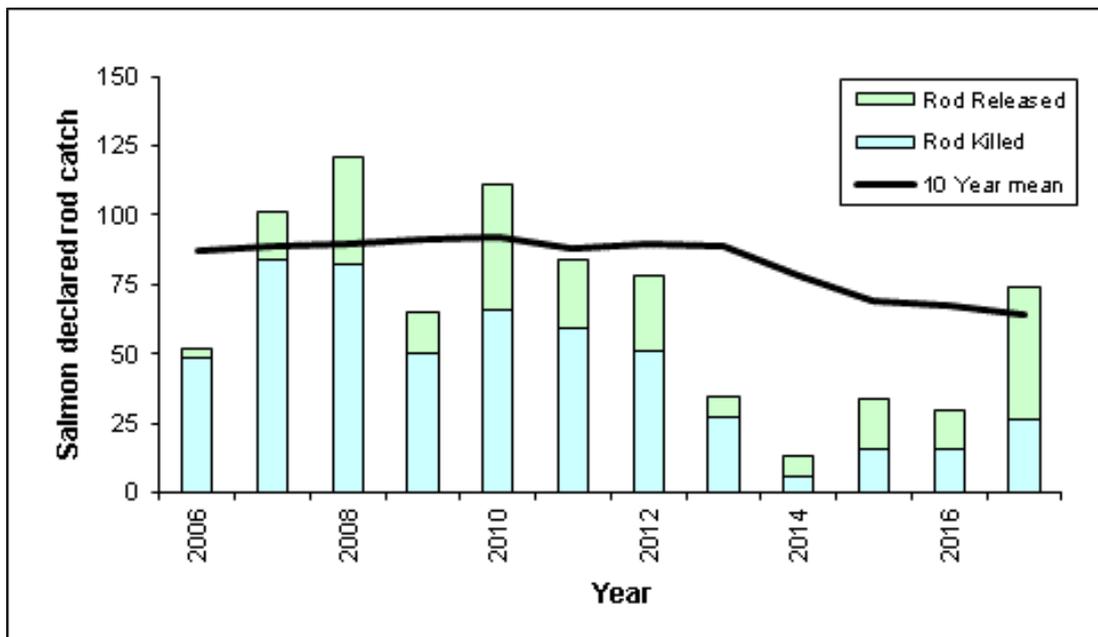
Water quality on the catchment is good with acidic upland streams being buffered by the underlying calcareous bedrock. The land use is mainly agricultural and slate quarrying is the main industry present.



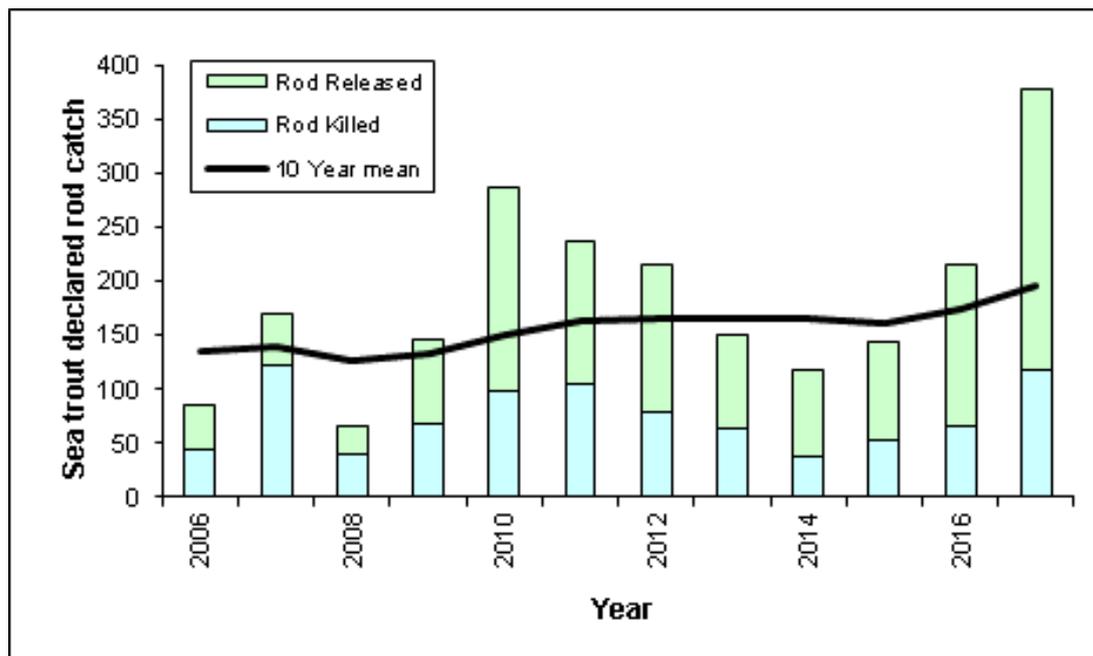
### Rod catches

The following graphs show the total declared rod catches for salmon and sea trout on the Ogwen.

**Salmon rod catch** – has improved in 2017 to slightly above the 10 year average catch, which is excellent news as salmon stocks are struggling nationwide . The release rate in 2017 was 65%. This is better than previous rates on the catchment and needs to continue to improve to conserve stocks.



**Sea trout rod catch** – an excellent year for sea trout on the Ogwen in 2017 and the best in the last ten years. The release rate in 2017 was 69% and could improve.

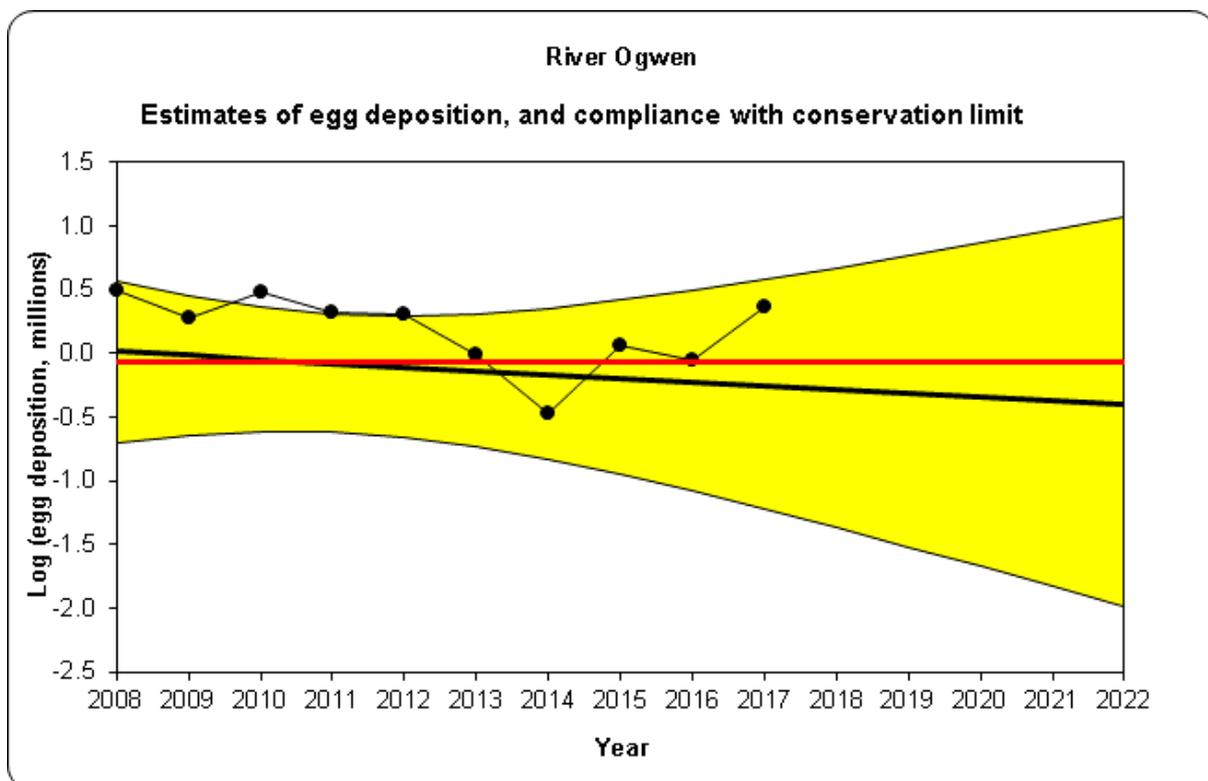


## Stock status

### Conservation of Salmon

Salmon stock status is assessed using 'Conservation Limits' which provide an objective reference point against which to assess the status of salmon stocks in individual rivers.

This is calculated by applying assumed angling exploitation rates to catch data to derive run estimates; adopting standard sex ratios and weight-fecundity relationships to generate egg deposition figures. The numbers of salmon a river can produce (and consequently the catches that the stocks support) are a function of the quality and quantity of accessible spawning and rearing area. Therefore, in general, big rivers have larger catches and have correspondingly bigger total spawning requirements than small rivers. Thus, for any given rivers there should be an optimum level of stock which the conservation limit seeks to protect. The conservation limit represents the number of eggs that must be deposited each year within a given catchment in order to conserve salmon stocks in the future.



Are enough salmon eggs being deposited to conserve salmon stocks in the catchment?

The red line represents the number of eggs required to be deposited to sustain a healthy salmon stock. The black trend line and its confidence limits (the yellow band) is fitted to the most recent 10-year series of egg deposition estimates (2008-2017).

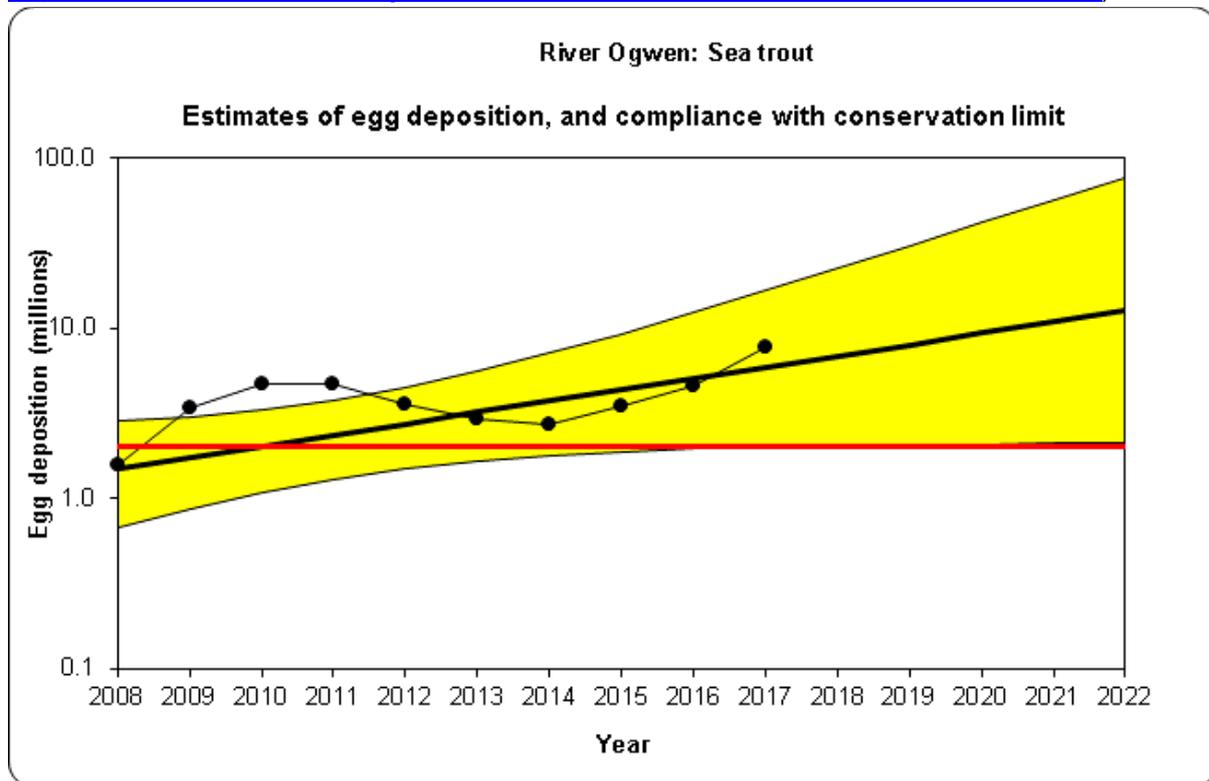
- Current number of eggs being deposited puts stocks **probably at risk**
- In 5 years' time the predicted status of salmon stocks will be **probably at risk**
- Based on current data, and the projection of the graph, the stocks of salmon on the Ogwen will continue to **decline (uncertain)**

## Conservation of Sea Trout

In contrast to salmon, no established methods of setting Conservation Limits or similar have been available for sea trout. In the absence of such analysis, NRW and the Environment Agency have, for several years, routinely applied a fishery based assessment to the principal sea trout rivers. This method – used previously in this report - utilises time-series' of angling catch per unit effort (CPUE) data ('catch per day') to examine sea trout performance on a river-by-river basis.

Recently an alternative stock-based assessment method has been developed by NRW and is applied here. This utilises angling catch data to derive run and egg deposition estimates for sea trout in much the same way that similar data sets are used in Conservation Limit compliance procedures for salmon assessment.

Further details on this method are given in the recent Technical Case supporting net and rod fishery byelaw proposals on all rivers in Wales and the cross-border rivers Wye and Dee (see: <http://naturalresourceswales.gov.uk/media/682258/technical-case-structure-final.pdf>)



Are enough sea trout eggs being deposited to conserve stocks in the catchment?

The red line represents the number of eggs required to be deposited to sustain a healthy sea trout stock. The black trend line and its confidence limits (the yellow band) is fitted to the most recent 10-year series of egg deposition estimates (2008-2017).

- Current number of eggs being deposited puts stocks **probably not at risk**
- In 5 years' time the predicted status of salmon stocks will be **not at risk**
- Based on current data, and the projection of the graph, sea trout stocks will continue to **improve**



### **Juvenile Monitoring**

The monitoring season was hindered in 2017 by wet weather and high flows. This led to the temporal site on the Dwyfor not being completed. This was also the case for most temporal sites in Gwynedd and Meirionydd.